DOCUMENT RESUME

ED 146 662 95 EA 009 684

AUTHOR Coursen, David
TITLE Playground Facilities and Equipment. ACSA School Management Digest, Series 1, Number 7. ERIC/CEM Research Analysis Series, Number 34.
INSTITUTION Association of California School Administrators.; Oregon Univ., Eugene. ERIC Clearinghouse on Educational Management.
SPONS AGENCY National Inst. of Education (DHEW), Washington, D.C.
PUB DATE 77
CONTRACT OEC-0-8-080353-3514
NOTE 33p.
AVAILABLE FROM Association of California School Administrators, P.O. Box 39186, Rincon Annex, San Francisco, California 94139 ($1.75 for ACSA members; $2.75 non-members)

EDRS PRICE MF-$0.83 HC-$2.06 Plus Postage.
DESCRIPTORS *Annotated Bibliographies; *Design Needs; Elementary Education; *Equipment Standards; Facility Planning; Facility Requirements; Handicapped Children; Learning Theories; *Literature Reviews; Play; *Playgrounds; Safety

ABSTRACT

Modern educators and playground designers are increasingly recognizing that play is a part, perhaps the decisive part, of the entire learning process. Theories of playground equipment design, planning the playground, financial considerations, and equipment suggestions are featured in this review. Examples of playgrounds include innovative multipurpose pilot projects and "adventure playgrounds." A brief section discusses playgrounds for handicapped children. Forty-four documents and journal articles, cited in the ERIC system and listed in the bibliography, were consulted for this review. (Author/MLF)

****
* Documents acquired by ERIC include many informal unpublished *
* materials not available from other sources. ERIC makes every effort *
* to obtain the best copy available. Nevertheless, items of marginal *
* reproducibility are often encountered and this affects the quality *
* of the microfiche and hardcopy reproductions ERIC makes available *
* via the ERIC Document Reproduction Service (EDRS). EDRS is not *
* responsible for the quality of the original document. Reproductions *
* supplied by EDRS are the best that can be made from the original. *
****

ED146662

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

playground facilities and equipment

David Coursen

EA 009 684

Prepared by
ERIC Clearinghouse on
Educational Management

Published by
Association of California
School Administrators

ACSA School Management Digest, Number Seven
ERIC/CEM Accession Number: EA 009 684
ERIC/CEM Research Analysis Series, Number Thirty-four

Printed in the United States of America, 1977
Association of California School Administrators
1575 Old Bayshore Drive
Burlingame, California 94010

Additional copies are available from ACSA for $1.75, members; $2.75, nonmembers.

The material in this publication was prepared pursuant to a contract with the National Institute of Education, U.S. Department of Health, Education, and Welfare. Contractors undertaking such projects under government sponsorship are encouraged to express freely their judgment in professional and technical matters. Prior to publication, the manuscript was submitted to the Association of California School Administrators for critical review and determination of professional competence. This publication has met such standards. Points of view or opinions, however, do not necessarily represent the official view or opinions of either the Association of California School Administrators or the National Institute of Education.

CONTENTS

Foreword	v
Introduction	1
Theories of Equipment Design	4
Planning the Playground	9
Concern for the Needs of Children, Parents, and Community	9
Financial Considerations	11
Some Equipment Suggestions	13
Examples of Innovative Playgrounds	15
Physical Play versus Creative Building	16
Adventure Playgrounds	17
Playgrounds for the Handicapped	20
Conclusion	22
Bibliography	23

The Educational Resources Information Center (ERIC) is a national information system operated by the National Institute of Education. ERIC serves the educational community by disseminating educational research results and other resource information that can be used in developing more effective educational programs.

The ERIC Clearinghouse on Educational Management, one of several clearinghouses in the system, was established at the University of Oregon in 1966. The Clearinghouse and its companion units process research reports and journal articles for announcement in ERIC's index and abstract bulletins.

Research reports are announced in *Resources in Education (RIE)*, available in many libraries and by subscription for $42.70 a year from the United States Government Printing Office, Washington, D.C. 20402. Most of the documents listed in *RIE* can be purchased through the ERIC Document Reproduction Service, operated by Computer Microfilm International Corporation.

Journal articles are announced in *Current Index to Journals in Education. CIJE* is also available in many libraries and can be ordered for $62 a year from Macmillan Information, 216R Brown Street, Riverside, New Jersey 08075. Semiannual cumulations can be ordered separately.

Besides processing documents and journal articles, the Clearinghouse has another major function—information analysis and synthesis. The Clearinghouse prepares bibliographies, literature reviews, state-of-the-knowledge papers, and other interpretive research studies on topics in its educational area.

FOREWORD

Both the Association of California School Administrators and the ERIC Clearinghouse on Educational Management are pleased to cooperate in producing the *School Management Digest*, a series of reports designed to offer educational leaders essential information on a wide range of critical concerns in education.

At a time when decisions in education must be made on the basis of increasingly complex information, the *Digest* provides school administrators with concise, readable analyses of the most important trends in schools today, as well as points up the practical implications of major research findings.

By special cooperative arrangement, the series draws on the extensive research facilities and expertise of the ERIC Clearinghouse on Educational Management. The titles in the series were planned and developed cooperatively by both organizations. Utilizing the resources of the ERIC network, the Clearinghouse is responsible for researching the topics and preparing the copy for publication by ACSA.

The author of this report, David Coursen, was commissioned by the Clearinghouse as a research analyst and writer.

Bert C. Corona
President
ACSA

Philip K. Piele
Director
ERIC/CEM

The author wishes to acknowledge the invaluable assistance of Erika D. Passantino, who prepared and evaluated the research material used in this paper. Mrs. Passantino is research coordinator, Richard J. Passantino, AIA, Architects, Bethesda, Maryland.

INTRODUCTION

> Several years ago, two 350-pound gorillas were turned loose on a new set of swings in Central Park. When it was found that the animals did not destroy the equipment, the playground was pronounced fit for New York City's children.
>
> Dattner, quoting from the *New York Times*[*]

This story illustrates the traditional way of judging the quality of playground equipment. It also strongly implies a belief that children at play are ape-like creatures who play primarily as a way of "letting off steam" by releasing their surplus energy. Thus the most important function of play is to provide a socially acceptable outlet for a child's hostile or aggressive impulses.

This view, which has led to the creation of what Dattner calls "gorilla playgrounds," suggests that it is far more important that there *be* places for children to play than that such places be carefully planned. If play is both natural and inevitable, the need for it can be adequately met by the simple existence of playgrounds. Further, since children at play resemble gorillas, the best equipment is the most durable and the least expensive. The real time, money, and expertise in the school planning process should be devoted to the classroom, where real "learning" takes place.

The belief that mental activity is somehow more "educational" than physical activity has a certain kind of commonsense appeal, and the view itself is widespread enough that a gorilla would feel at home on most existing playgrounds. Fortunately, however, modern educators and playground designers are increasingly recognizing that this traditional approach is inadequate, that the play of children is neither as primitive nor as destructive as that of apes.

The modern approach to play is to consider it as a part,

---

[*]Unless otherwise stated, references to Dattner are from *Design for Play*.

perhaps the decisive part, of the entire learning process. Hawkins' definition seems fairly representative:

> Play is expressive behavior—spontaneous, creative, fanciful. Play is a fun process, a learning process. It is a means for helping children handle social interactions; act out role models; think and behave creatively; develop motor skills and coordination; discover the excitement of adventure and challenge. Play is unique to each child; he makes his own discoveries at his own pace, at his own choosing. Play is an essential element in growing up as a healthy, productive, and socially aware person.

This basic idea, that play is a learning experience, is almost universally accepted by contemporary experts. In fact, play actually contributes to many different types of learning—physical, mental, social, and emotional. Thus, in the broadest sense, play can be defined as information-gathering, knowledge-seeking behavior.

Play is one of the most useful and important ways the child has of learning about himself and the world around him. Most obviously, play is a form of physical education that helps children learn about their bodies—their capacities and limitations. According to movement theory, for example, play helps children master certain basic "core" body movements that are the components of more complex physical activities.

Play can also give a child the opportunity to test himself and his capabilities by trying to perform various tasks. The experience of working at and mastering a physical skill can give a child a sense of personal achievement, self-confidence, and, ultimately, greater self-esteem. Play also involves a certain amount of risk-taking, and this allows the child to test and learn to trust his own judgment.

Some forms of play help the child learn to respond creatively to different types of situations. Other forms of play are primarily social, and these help the child learn to relate to other people. Cooperative play or activities that require following rules create the interpersonal situations that can give the child a chance to understand and test various ways of interacting with other people. Finally, when play provides a range of experiences, including both success and failure, it

can help a child to gain a measure or emotional maturity.

It is important to recognize, as Dattner points out, that play is a voluntary activity. Play is also spontaneous; a child will play wherever the prospects seem most attractive. This fact suggests that one of the basic assumptions of traditional play theory is incorrect; the mere act of establishing a play area cannot ensure that children will use it. Instead, a playground must compete with the other attractions of the world for the child's time and attention.

What all this suggests is that children learn from play, and that what they learn can be influenced by the design of playgrounds and equipment. A corollary is that, if learning is not successfully planned for, other, perhaps less desirable, types of learning may take place instead. But, whether it is planned or not, play is physical and environmental education that teaches a child about himself and the world in which he lives.

THEORIES OF EQUIPMENT DESIGN

The term "playground equipment" almost inevitably brings to mind swings, slides, and various types of metal structures. Such equipment, of course, reflects the traditional concept of play as a necessary distraction from the classroom learning environment. The resulting playgrounds are admirably summarized by Dattner:

> The typical . . . playground . . . could not be a more hostile environment for children's play if it had been designed for the express purpose of preventing play. Characteristically, it is an unbroken expanse of concrete or asphalt pavement, punctuated by the forlorn presence of metal swings, a slide, and some see-saws. Not only does this design lack any possibility for real play; the most interesting activities are prohibited anyway by signs saying "NO" in huge letters, followed by a list of all the things children like to do.

Such playgrounds might easily be "gorilla-tested" and certified as indestructible. It is doubtful, however, that this sort of environment is likely to foster creative, stimulating, or even enjoyable play. Instead, the child who plays in such an area will quickly sense that it has been designed with a basic hostility to genuine play and an insensitivity to real human needs.

In an effort to analyze how well various types of equipment meet children's play needs, Sutton-Smith identified three primary functions of play—exploration, testing, and creative play. He found that for children five through nine traditional equipment could partially satisfy the need for testing. What makes this fact worth noting is that it is virtually the only favorable comment about traditional equipment to be found anywhere in recent writing on the subject. Most writers share Hanson's view that a traditional playground is "a proliferation of iron bars cemented into a stark desert of asphalt."

Because traditional facilities are so unsatisfactory, one of

the principal concerns of contemporary experts is to develop new approaches to designing equipment and playgrounds. The intelligent application of "modern" play theory should produce more satisfactory equipment. Unfortunately, "modern" does not always mean "intelligent."

One of the most distressing phenomena in modern playgrounds is the way in which "beautiful" equipment, artistically created with all the virtuosity of the highly skilled designer, sits unused. Certain types of modern equipment, more like pieces of sculpture than things for children to play with, are designed purely from an adult perspective. No matter how beautiful a piece of equipment may seem to adult eyes, if it does not satisfy the children who use it, its design is a failure.

The potential seriousness of this problem is emphasized in a study by Bishop and others. Children were asked to compare two or more equipment designs and indicate which they preferred. The authors then compared these results with what adult professionals *thought* the children would prefer. Findings strongly show that "adult designers are insensitive to the play preferences of children." As a result, the study concludes:

> . . . the design traditions and artistic talents of the design profession may not be sufficient. The objective of playground design is to provide attractive and satisfying play opportunities that also enhance the child's "health, safety, and morals," contribute constructively to his growth and development, and are economical. Designers must add to their skills and techniques 1) an ability to measure the preferences of children, and 2) an ability to explain the preferences in terms of design variables.

A sampling of equipment theory suggests, as Derman points out, that much of the best design work that is being done is intuitive. What this means is that even when satisfactory equipment is designed, its creators are not formulating specific theories about why the equipment is successful, theories that might be of help to other, perhaps less talented, designers.

The work of Dattner, for example, is brilliant, but his theoretical framework is not very precise. From the premise

that intelligence and learning consist of a creative interaction between the individual and his environment, he concludes that there are two basic requirements for the design of play equipment, and that these are the source for all the others:

> The first is that the environment must provide the individual with an adequate range of experience. The second is that the environment must allow for some measure of control by the individual. (As the next chapter shows, these are precisely the conditions sought by children when they are left to their own devices.) The British psychiatrist Ronald Laing has called these two interrelated factors "experience" and "control of experience," and states that they are essential for any individual to live a healthy human life.

He then lists more specific requirements for the play environment, including providing for graduated challenge, choice in activities, exercise of fantasy, expressive play, and separation from adults.

Other work similarly suggests what the equipment should do without indicating what sort of equipment will do it. Ellis notes that equipment selection should be based on the assumptions that children play for stimulation, need increasingly complex activities, and learn about the environment and roles in social groups through play. In order to meet these criteria, a piece of equipment should do the following:

- manipulate the child in the most ways by eliciting a wide range of possible responses from the child
- allow the child to manipulate it the most, by having the widest variety of possible uses
- preempt the behavior of the child the least
- allow for cooperation among children
- teach the children the largest number of desirable learning goals

Miller offers some more specific guidelines for the design of adaptable, versatile, and flexible equipment. She suggests that good equipment should be

- simple, natural, inexpensive
- unlimiting and interpretable
- movable and adaptable

- designed to encourage large and small muscle action
- designed to contribute to perceptual-motor development
- attractive

It is particularly important that equipment be manipulatable, because children invariably attempt to manipulate material; when such attempts are directed at completely rigid equipment, they are generally labeled "vandalism." It is also crucial to bear in mind how a specific piece of equipment will aid the child's development.

The overall design of a play area is particularly important. A playground should be organic and coherent, with a design that coordinates the various areas where different activities are likely to take place. Friedberg suggests that a playground should resemble the grouping of abstract activities normally experienced in nature, such as sliding, swinging, and balancing. Accordingly, it should be complex without being chaotic, should be designed to be of continuing interest to the child, and should provide opportunities for discovery and choice.

Most writers seem to agree that a good playground is one that stimulates the child by offering a variety of interesting, challenging, and rewarding activities. Learning takes place on a playground; the nature of that learning is closely related to the care with which the area is designed. A successful play area can teach a child many things if it offers a wide range of ways the child may creatively interact with it.

It is crucial to remember that learning takes place on any playground and that this learning may not always be positive or desirable. As Dattner observes, children learn a great deal on gorilla playgrounds:

> They learn, first, that they do not matter as individuals but only as a group whose needs for play facilities must be met even though in the most minimal way. They learn that they can have no constructive effect on their fixed and immobile environment; they can change it only in a destructive way, finding satisfaction by outwitting the adult world so evidently hostile to them. They learn that the man-made world is dull, ugly, and dangerous, and

empty of sensuous satisfactions; that civilization delights in reducing the varied potentials and unique qualities of individuals to a pattern of uniformity; that pleasure can be obtained only at the expense of another individual—a solitary pleasure, incapable of being shared with others.

PLANNING THE PLAYGROUND

The success of a playground often depends on the care and skill with which it is planned. Proper planning should be concerned with all aspects of the play environment—the layout of the playground as well as the suitability of the equipment.

Concern for the Needs of Children, Parents, and Community

Ideally, a play area should be planned primarily to meet the needs of the children who are to use it. However, as a practical matter it is often necessary to be concerned with the wishes of other groups as well, including school officials, parents, and neighbors of the playground site.

Dattner identifies the groups that influence playground design and the interest each group has in the success of the completed play area. He concludes that the group with the most control over design—administrators—is least involved in actual playground use. Administrators have three primary concerns: cost, maintenance, and the educational function of the playground. Only the last of these is likely to lead to the construction of child-oriented playgrounds, while the first two are likely to encourage the building of "gorilla" playgrounds.

Dattner further suggests that children, who are the most directly affected by the quality of the completed playground, have the least control over its design and construction. Clearly, though, a successful play area must meet children's play needs, and Dattner's list of those needs (graduated challenge, choice in activities, exercise of fantasy, and separation from adults) is worth repeating.

Still another set of concerns is felt by a third interested group, parents of the children who will use the play area. Their primary concerns are for the accessibility of the play

area and the safety of the equipment. In addition, the parents of younger children may wish to be able to observe the area comfortably and with some separation from their children.

Safety is a particularly important design factor that may seem to dictate the use of traditional types of equipment. There are two principal reasons why this is not the case. To begin with, even a piece of "gorilla-proof" equipment may be potentially hazardous. For example, a metal swing that strikes a bypasser in the head can be lethal. In addition, there is some evidence that it is not so much the use of equipment as its misuse that causes accidents. The Consumer Product Safety Commission found that in playground accidents, "more often than not, the child's behavior was other than the use for which the equipment was designed." In this respect, modern equipment, designed for a variety of uses and therefore more difficult to "misuse," may actually be safer than traditional equipment.

In addition, even if it were possible to design perfectly safe equipment, that would hardly be desirable. As Hewes points out, "to attempt to create an absolutely safe playground would contradict one of the principal characteristics of play, that it involves risks." If a child senses the challenge, even danger, in using a piece of equipment, he will be more careful in his own actions. A bored child may not pay close attention to what he is doing; that is unsafe. A child who is stimulated by a specific activity will be fully conscious of all the variables in that activity; that can be equivalent to the element of risk that is a natural part of life.

Planning should also consider the needs of the people who live near the playground. They will surely be concerned with the amount of noise coming from the area (especially early in the morning), the appearance of the area, and, perhaps, the ease and convenience of watching children at play.

One way of making sure that these design needs are met and, more importantly, that the playground is accepted into

the neighborhood is by making efforts to assure community involvement in the project. When this is done, the resources of the people in the area can be used effectively. In addition, people who feel involved in a play area will be vitally interested in its success and may even help discourage vandalism.

Miller suggests the following planning guidelines for building a playground in a way that involves the whole community:

- identify the play-learning needs and interests of area children
- study and evaluate other play areas similar to the one you hope to build
- survey existing community resources
- involve the local power structure
- select a site
- draw up specific plans
- select priorities for implementing the plans

In addition, there should be some systematic method for evaluating the success of the project by measuring the changes the new playground has produced.

Financial Considerations

The usual method of calculating the cost of something is simply to ask how much money must be spent to build it. But, Dattner points out, construction cost is, in itself, a relatively meaningless concept. A piece of equipment that costs $500 and sits unused is very expensive. On the other hand, a piece costing $2,000 and in constant use may be a bargain. The best way to recognize this fact is to base estimates on cost per use rather than simply to calculate the sum of money needed to build the playground or the piece of equipment.

Similarly, it might seem that gorilla-proof equipment is the easiest and cheapest to maintain. Equipment that challenges and stimulates children often *is* expensive to maintain, but equipment that frustrates and angers them may encourage vandalism, and this, too, can be expensive. What

Dattner suggests is that administrators judge equipment within the broad context of its overall function. It then becomes clear that a child-oriented play area may not be as expensive as it appears, while a gorilla playground may have many hidden costs.

Financing a play area is, of course, an important consideration. Resources can often be used most efficiently when the school board and the local department of parks and recreation work together. An area can be built for both school and general use, reserved for students during school hours and open to the public at other times. If this is done, expenses can be shared and facilities used as fully as possible.

There is no real consensus about whether the most desirable equipment is "homemade" or purchased. Hohm argues that the advantages of equipment designed for a specific area make a customized playground superior. Manufacturers are often slow to develop equipment based on new ideas. In addition, a customized playground can "reflect the interaction between the unique characteristics of users and location."

Several writers describe the process of building a "homemade" playground cheaply and successfully. Seker describes a "scavenger playground" built by volunteers with discarded and donated material at a school in Vermilion, Ohio, for $200. Lueck relates a similar, equally successful experience.

Etkes emphasizes the disadvantages of "homemade" or customized equipment. "Homemade" may mean incompetently made. Professionally customized play areas can be incredibly expensive. Friedberg designed and built one small play area for $400,000. With carefully selected manufactured equipment, research costs are spread over a number of purchasers. In this way, a well-designed playground of purchased equipment can incorporate creative design ideas, providing, as Etkes says, "a coordinated environment with given types of equipment configurated in a way that accomplishes its purpose."

Some Equipment Suggestions

Because the term "equipment" so often means gorilla equipment, it is important to identify some types of innovative equipment that are available. Jensen suggests the scope of the change in equipment that will be necessary if child-oriented play areas are to be built.

> The swings, slides, teeter-totters and merry-go-rounds of yesterday will have to give way to the more useful and creative climbers, stegels, balance beams, vaulting devices, and the many improvised pieces that ingenious teachers are devising.

The simplest equipment list is offered by Dattner in a 1973 journal article, in which he suggests that 90 percent of play needs could be met by a large sandpit placed next to a large water area. The comment is perhaps exaggerated, but it does suggest how simply many equipment criteria can be met.

Equipment can be divided into at least five basic categories:

- moving apparatus
- realistic apparatus
- nonmoving apparatus
- inactive play apparatus
- facilities for nonactive play

It is also possible to classify equipment according to its desired functions. These might include dramatic play, climbing, jumping, swinging and balancing, coordination testing, throwing, running, constructing, drawing, painting and sculpturing, and other purposes. Walston suggests that there should be equipment "to provide situations where each child must learn to work alone, to cooperate and compete with himself and others, and to cooperate and compete at the same time." Some equipment should stimulate the imagination by having the capacity to become different things to different children. Finally, there should be some equipment that forces the child to think, to respond creatively to situations, and to make decisions.

Ledermann and Trachsel suggest that a comprehensive

play area might include the following sections:

- outdoor work and construction area
- open air theater
- hard surface area
- playing field
- playground for small children

It is, of course, also important to consider the physical characteristics of the children who will be using the play area. Equipment should be well suited to the physical capabilities and sizes of children in the age groups most likely to use it. Obviously, older children, capable of more complex activities, will need more facilities than younger children. Mittelstaedt suggests that preschool children might need a sandbox for digging and a climbing area. In addition to these things, kindergarten children will need a slide, a paved area, and a turf area. Primary children will require similar facilities that provide for more different types of activities. Finally, he suggests that intermediate children need still greater diversity, including parallel bars and chinning bars. In addition, several writers observe that, because a playground should be a place to experience with all the senses, it should include natural areas with trees and other forms of plant life.

EXAMPLES OF INNOVATIVE PLAYGROUNDS

Some of the most significant advances in equipment design have been made in playgrounds funded by private foundations as pilot projects. Professional designers construct such playgrounds in the hope of providing models for the successful building of other, similar facilities. Perhaps the most interesting work of this kind has been done by Friedberg and by Dattner.

Friedberg, with large grants from a private foundation, designed two very innovative playgrounds in urban school areas. His basic aim was to design equipment that would not require extensive maintenance, could be built anywhere, and could be used without extensive supervision.

He describes the New York City project as follows:

> The schoolyard at P.S. 166 is of modest proportions. In this rather limited space (100' x 175'), there has been incorporated a kindergarten play area, an amphitheater, an underground comfort station, a variety of play facilities, including concrete modular units, spring pads, wood stepping blocks, outdoor blackboard, arch climbers, geodesic domes with swings attached and wood bridges. On the street, a small indentation provides a sitting area with benches and chess tables.

In addition, the amphitheater can be used as a spray pool on appropriate days. The walls were painted in primary colors, and the kindergarten play area was scaled to the size of its users.

Friedberg's other pilot playground was at the Buchanan School in Washington, D.C. That area contains "stepping columns, bridges, tree houses, modular concrete units, a cable spiderweb, arch climbers with swings suspended from them, a mound with three slides and tunnels, and a cable slide from the summit of the mound to the sand area in the valley." Next to it is a depressed basketball court that can also be used for other activities. Since the court is depressed, there is no need for the traditional fenced enclosure.

Both these areas are small, but in each a wide variety of activities is possible and in each the child remains always conscious of being a part of the larger environment. For example, young children can learn by watching older children or each other. In addition, the visual accessibility of every part of the playground largely eliminates the need for supervision.

Friedberg's work in these two playgrounds was done under rather large grants. In addition, as Derman points out, the designs are derived intuitively, so their use for other designers is limited. Instead of attempting to formulate general design theories, Friedberg is interested in a way to make good equipment widely available.

> What is needed is a universal design that can meet the needs of children and that has the flexibility for designers to use as a tool in achieving a total concept, a product that can be reasonably manufactured, shipped and assembled and modified as ideas and information about play change. It should be a facility so flexible that it can be modified when it becomes obsolete or when there are inherent design errors.

In attempting to realize this goal, Friedberg has constructed four modular systems that can easily be erected and dismantled. The four include a system of stacked wood timbers, a system of tubular steel bars, a system of concrete modular bases, and a series of pipe and cable units.

Dattner's most interesting playground is apparently the one he designed in New York's Central Park. The basic concept is of a group of small, varied, and related elements surrounding a large central space. The child is offered a wide choice of activities, ranging from individual play to group activities, and from simple to more complex types of play.

Physical Play versus Creative Building

In organizing his playground, Dattner established two zones, one primarily for physical activities, the other for such activities as digging, building, painting, and playing with water. These two areas suggest the principal dichotomy

in modern playground design theory. One area is designed for unsupervised play, with the emphasis on physical activities. In this area, specific pieces of already-completed equipment are dominant. The other section, oriented more toward manual activities, is much different. There the main concern is to make the child's environment as manipulable as possible.

Basically, the choice is between physical play areas and creative building areas. Friedberg's playgrounds, which clearly fit the former category, strongly emphasize physical play. The environment is manipulable, but the principal interaction between the child and the environment is dependent on the imagination of the child rather than on the characteristics of the equipment itself. Such an area can be relatively maintenance free and, of course, little supervision is necessary.

Each area in Dattner's playground is primarily intended to serve one of the two purposes. The physical play area was designed for heavy use and does not require constant maintenance or supervision. The manual activities section is open only at certain times and always under supervision. Because the physical play area is always open, it is possible to restrict the supervised play area to certain hours of operation. In the small areas Friedberg used, this kind of flexibility was not possible. Dattner has created a more comprehensive play environment, but the restricted space Friedberg had to employ and the need for a completely unsupervised play area may be more representative of the circumstances of most playgrounds being designed.

Adventure Playgrounds

Dattner calls his play area an "adventure playground," though others would call it a playscape. The adventure playground seems to have originated with C. T. Sorenson in Denmark in 1943. He observed that children seemed to enjoy playing on discarded building sites or even playing with junk. Accordingly, he devised an area providing children with a site and building materials and allowing them to

build whatever they wish. The play area was called an adventure or junk playground.

The idea, which proved highly successful, spread through many parts of Europe. Lady Allen of Hurtwood helped popularize the idea in the United Kingdom, where a number of the most successful adventure playgrounds have been opened. Its acceptance in the United States has been relatively slow, though there was one in Minneapolis as long ago as 1950. The idea still seems to be gaining momentum, and many writers consider it "the wave of the future."

A typical adventure playground might cover from one-half to two and one-half acres and provide a wide range of possible activities for the children. These might include building houses, dens, and climbing structures with waste materials, having bonfires, cooking in the open, digging holes, gardening, or just playing with earth, sand, water, and clay. The atmosphere in such a playground should be permissive and free for children whose lives are often limited and restricted by the lack of space and opportunity in the rest of their urban environment.

There is some evidence that adventure playgrounds can be of great benefit to children who use them. Thompson and Rittenhouse report on a survey that showed that the social skills of children actually increased when they participated in an adventure playground. In addition, such children often made new friends, and their activities at the playgrounds helped allow these new friendships to develop. In working to complete group projects, children developed a greater spirit of cooperation and more effective communication.

Adventure playgrounds do, however, have definite limitations. As Lady Allen observes,* no matter how well the area is designed, children will eventually return to the streets unless there is supervision. In addition, the structures the children build will not be as visually satisfying to adults

*Unless otherwise stated, references to Lady Allen are from *Planning for Play*.

as the work of professional carpenters, and children will get dirty.

It is probably prudent to make some efforts to conceal a junk playground from outside view or neighbors may decide it is an eyesore and a blight on the neighborhood. There is, however, little that can be done about the inevitable results of a child interacting with dirt, and dirty children may be incompatible with a school environment. Safety problems, however, seem nonexistent. Lady Allen reports that in ten years of adventure playgrounds in the United Kingdom there has not been a single serious accident.

There have been several efforts to incorporate adventure playgrounds into school areas. Reid reports on such a project in Vancouver, B.C. There, "modified" adventure playgrounds, more restrictive and less challenging than true adventure playgrounds but still far different from traditional play areas, were built at several schools. Questionnaires were circulated to determine the reactions of various concerned groups to the project. Every group was enthusiastic, though school personnel were the least so. Parents were concerned about children getting dirty, but the most common suggestion was that additions be made to the playgrounds.

McGuire reports on a project undertaken by the Milpitas, California, city-school recreation department. There an adventure playground was designed as part of a larger play area. The structures the children built were hidden from the view of outsiders. The results of the project were extremely positive. Youngsters used the new facilities frequently, developing new skills and experimenting with the building materials.

The evidence suggests, though it certainly does not prove, that adventure playgrounds may after all have a place in a school recreation program. It is evident from the enthusiastic response to the adventure playgrounds that have been built that the concept itself is sound. The challenge is to devise practical ways to apply this concept to specific school situations.

PLAYGROUNDS FOR THE HANDICAPPED

Playground equipment for special education has a dual importance. The equipment itself is worth considering. In addition, the behavioral changes that innovative equipment has induced in retarded children are a dramatic example of the role equipment design can have in the development of all children.

In a journal article, Lady Allen defines a handicapped child as "one with any continuing disability of body, mind, or personality which is likely to impede normal development." She further suggests that classifying children as handicapped may be a self-fulfilling prophecy, especially since it can lead to the segregation of handicapped children.

Lady Allen was involved in the building of an adventure playground for handicapped children in London. It was designed to provide a stimulating, challenging atmosphere for such children. The key planning concepts were graduated challenge, which allows each child some appropriate activities, and adequate supervision, which encourages the children to make the fullest possible use of the facilities. Observation suggests that the area has enhanced the development of the children.

The Orange County Board of Public Instruction (Orlando, Florida) reports on an interesting development in specialized play areas—the Magruder Environmental Therapy Complex. This is a federally funded program based on the idea that "it is possible to improve the handicapped child's learning ability by providing a fuller range of preschool perceptual experience."

> Learning depends on perception; if the flow of sensory experience is blocked or slowed because of an impaired motor system, then mental development cannot proceed at a normal rate. In school a disabled child may have difficulty in grasping abstractions basic to academic progress. Such difficulty is often assumed to be due to low I.Q. or even retardation. Actually,

these learning problems may be the result of a lack of perceptual experience due to physical deficiencies.

The project designed equipment that would allow the physically handicapped child to learn about his body. A set of desirable perceptual goals for all children was established. Equipment that would allow for the development of these perceptions in the children by inducing certain motor responses was then designed. The ultimate aim of the project was to provide the children "a breadth of experience as similar as possible to that of normal experience." While it is not yet clear whether the project has achieved its stated goal, the children have definitely broadened the range of their play and social activities.

These two play areas are important because they may represent specific breakthroughs in the field of special education. In addition, though, they demonstrate the way in which the play environment can influence the child's development. Traditional equipment, limiting as it is, may actually inhibit the child's development in much the same way that physical disabilities might. The existence of these two facilities and the increase in sensory awareness of the children using them confirm the hypothesis that play is learning and that what a child experiences in the play environment is "educational."

CONCLUSION

Contemporary thinking about playground equipment and design is certainly not monolithic. However, most of the differences among writers on the subject are about how to accomplish specific goals, not about the goals themselves. There seems to be a broad consensus that play is a learning experience.

This means that the traditional gorilla playground is no longer acceptable. A playground is not just a place to which the child goes for recreation that interrupts the learning process taking place in the classroom. In fact, some writers come close to arguing the reverse, namely that the most important part of the learning process is what takes place in the play environment.

Play is too important to the child's development for haphazard equipment design or casual playground planning to be tolerated any longer. Play areas should be carefully planned to meet the needs of the children who will be using them. Good equipment should stimulate the child and help him learn about himself and his environment. There should be pieces of equipment designed to induce specific types of learning, and others which simply offer the child a wide range of possible uses.

Clearly, there are many possibilities for developing new equipment and new design criteria. It is certain that children will be the beneficiaries of a new way of looking at playgrounds, one that consigns the bars and rigid metal forms of traditional playgrounds to a more appropriate setting, the zoo.

BIBLIOGRAPHY

Many of the items listed in this bibliography are indexed in ERIC's monthly catalogs *Resources in Education (RIE)* and *Current Index to Journals in Education (CIJE)*. Reports in *RIE* are indicated by an "ED" number; journal articles in *CIJE* are indicated by an "EJ" number.

Copies of most ERIC reports, but not journal articles, can be ordered from the ERIC Document Reproduction Service. If a report is available from EDRS, its order number and prices are given. When ordering, please specify the "ED" number. Unless otherwise noted, reports are available in both microfiche (MF) and paper copy (HC). Please include check or money order payable to EDRS.

Postage must be added to the cost of all orders. Rates are as follows. Microfiche: $0.30 for up to 60 fiche and $0.11 for each additional 60. Paper copy: $0.30 for first 60 pages and $0.11 for each additional 60.

Address requests to EDRS, P.O. Box 190, Arlington, Virginia 22210.

Bengtsson, Arvid, editor. *Adventure Playgrounds*. New York: Praeger Publishers, 1972.

Bishop, Robert L., and others. "Measurement of Children's Preferences for the Play Environment." Paper presented at Environmental Design Research Association annual conference, Los Angeles, January 1972. 9 pages. ED 061 578 MF $0.83 HC $1.67.

Cheek, Becky. *Planning Playgrounds for Day Care*. Atlanta, Georgia: Southern Regional Education Board, 1973. 37 pages. ED 083 719 MF $0.83 HC $2.06.

Consumer Product Safety Commission. *Hazard Analysis of Injuries Relating to Playground Equipment*. Washington, D.C.: Bureau of Epidemiology, 1975. 73 pages. ED 120 102 MF $0.83 HC $3.50. (Also available from U. S. Consumer Product Safety Commission, Bureau of Epidemiology, 1750 K Street, N.W., Washington, D.C. 20207. No price quoted.)

Dattner, Richard. "Playgrounds Aren't for Playing: Playgrounds Are for Growing and Learning." *American School Board Journal*, 160, 4 (April 1973), pp. 30-31. EJ 076 220.

Dattner, Richard. *Design for Play*. Cambridge, Massachusetts: The MIT Press, Paperback Edition, 1974.

Derman, Asher. "Children's Play: Design Approaches and Theoretical Issues." *Man-Environment Systems*, 4, 2 (March 1974), pp. 69-88.

Ellis, M.J. "The Rational Design of Playgrounds." *Educational Product Report*, 3, 8/9 (May-June 1970), pp. 3-6. EJ 027 289.

Etkes, Asher B. "The Case for Buying Your Playground." *Educational Product Report*, 3, 8/9 (May-June 1970), pp. 21-22. EJ 026 827.

Friedberg, M. Paul. *Playgrounds for City Children*. Washington, D.C.: Association for Childhood Education International, 1969. 60 pages. ED 095 636 MF $0.83 HC not available from EDRS.

Gordon, Ronnie. "Playgrounds Can Be 'Experience Equalizers'." *American School and University*, 45, 10 (June 1973), pp. 37-38, 40-41. EJ 079 541.

Grey, Alexander. "Creative Learning in Children's Playgrounds." *Childhood Education*, 45, 9 (May 1969), pp. 491-499. EJ 007 071.

Hanson, Robert F. "Playgrounds Designed for Adventure." *Journal of Health, Physical Education and Recreation*, 40, 5 (May 1969), pp. 34-36. EJ 004 553.

Hawkins, Donald E. "The Playscape: A Child-Oriented Learning Environment." *Educational Product Report*, 3, 8/9 (May-June 1970), pp. 15-17. EJ 027 290.

Hewes, Jeremy Joan. *Build Your Own Playground! A Sourcebook of Play Sculptures*. Boston: Houghton Mifflin Company, 1974.

Hohm, James E. "Do It Yourself?" *Educational Product Report*, 3, 8/9 (May-June 1970), pp. 20-21. EJ 026 826.

Holter, Patra, and Schaefer, Anne. "Playground Design Club." *Instructor*, 81, 7 (March 1972), p. 76. EJ 053 022.

Jensen, Gordon. "Where Good Physical Education Programs Exist." In *Physical Education for Children's Healthful Living*, edited by Sylvia Sunderlin, pp. 63-70. Washington, D.C.: Association for Childhood Education International, 1968. (Available from Association for Childhood Education International, 3615 Wisconsin Avenue NW, Washington, D.C. 20016. $1.50.)

Lady Allen of Hurtwood. *Planning for Play*. Cambridge, Massachusetts: The MIT Press, 1968.

Lady Allen of Hurtwood. "An Adventure Playground for Handicapped Children in London." *International Journal of Early Childhood*, 3, 2 (1971), pp. 70-77. EJ 050 487.

Ledermann, Alfred, and Trachsel, Alfred. *Creative Playgrounds and Recreation Centers*. Revised Edition. New York: Frederick A. Praeger, 1968. 176 pages. ED 033 567 Document not available from EDRS.

Licht, Kenneth F. "Safe Playground Design." *American School and University*, 47, 4 (December 1974), pp. 23-25.

Lueck, Phyllis E. "Planning an Outdoor Learning Environment." *Theory into Practice*, 12, 2 (April 1973), pp. 121-127. EJ 079 538.

Markun, Patricia Maloney, ed. *Play: Children's Business and a Guide to Play Materials*. Washington, D.C.: Association for Childhood Education International, [1974]. 65 pages. ED 101 848 MF $0.83 HC not available from EDRS. (Available from Association for Childhood Education International, 3615 Wisconsin Avenue, N.W., Washington, D.C. 20016. Paper, $2.95 plus $0.30 postage and handling.)

McGuire, Robert F. "Adventure Playgrounds." *Parks and Recreation*, 6, 11 (November 1971), pp. 30-32. EJ 047 823.

Miller, Peggy L. *Creative Outdoor Play Areas*. Englewood Cliffs, New Jersey: Prentice-Hall, 1972. 121 pages. ED 063 060 Document not available from EDRS. (Available from Prentice-Hall, Inc., Publishers, Englewood Cliffs, New Jersey 07632. $7.95.)

Mittelstaedt, Arthur H., Jr. "Planning School Grounds." *Journal of Health, Physical Education and Recreation*, 40, 5 (May 1969), pp. 37-40.

Ontario Department of Education. *Special Education Facilities: Schools and Playgrounds for Trainable Mentally Handicapped Children*. Toronto: School Planning and Building Research Section, 1971. 25 pages. ED 058 688 MF $0.83 HC not available from EDRS.

Orange County Board of Public Instruction. *An Adaptive Playground for Physically Disabled Children with Perceptual Deficits: The Magruder Environmental Therapy Complex*. Orlando, Florida: 1969. 22 pages. ED 036 941 MF $0.83 HC $1.67.

Passantino, Erika D. "Adventure Playgrounds for Learning and Socialization." *Phi Delta Kappan*, 56, 5 (January 1975), pp. 329-333.

Passantino, Richard J. *Found Spaces and Equipment for Children's Centers. A Report*. New York: Educational Facilities Laboratories, 1972. 72 pages. ED 063 652 MF $0.83 HC $3.50.

Pendleton, Clarence M., Jr. "Penny's Pavilions—Concept in Concrete." *Parks and Recreation*, 6, 5 (May 1971), pp. 42, 78. EJ 037 409.

Pennington, Gary. "The Key Word Is Adventure." *Instructor*, 81, 7 (March 1972), pp. 74-76. EJ 053 021.

Reid, Marilyn J. *An Evaluation of Creative/Adventure Playgrounds and Their Use by Pupils of Elementary Schools*. Vancouver, British

Columbia: Vancouver Board of School Trustees, 1971. 32 pages. ED 057 108 MF $0.83 HC $2.06.

Seker, Jo. "Your School Can Have This Scavenger Playground." *Grade Teacher*, 87, 5 (January 1970), pp. 62-64. EJ 013 767.

Sharkey, Tony, and others. *Building a Playground*. Newton, Massachusetts: Education Development Center, 1970. 23 pages. ED 065 198 MF $0.83 HC not available from EDRS. (Available from Education Development Center, Inc., 39 Chapel Street, Newton, Massachusetts 02160. $1.00.)

Stone, Jeannette Galambos. *Play and Playgrounds. A Report*. Washington, D.C.: National Association for the Education of Young Children, 1970. 71 pages. ED 073 540 Document not available from EDRS. (Available from the National Association for the Education of Young Children, 1834 Connecticut Avenue, N.W., Washington, D.C. 20009. $2.75.)

Stone Mountain Educational Projects, Inc. *Children's Things: A Construction Guide for Play and Recreational Equipment for Parents, Teachers, Child Care Centers and Camps*. Conway, Massachusetts: 1972. 32 pages. ED 068 162 MF $0.83 HC $2.06. (Also available from Stone Mountain Child Development Center, 60 Broad Street, Westfield, Massachusetts 01085. $3.00.)

Sutton-Smith, Brian. "A Psychologist Looks at Playgrounds." *Educational Product Report*, 3, 8/9 (May-June 1970), pp. 13-15. EJ 026 824.

"Taking Play Seriously: The Experimental Playground." *American School and University*, 48, 10 (June 1976), pp. 22-27.

Thompson, Frederick C., and Rittenhouse, Ann M. "Measuring the Impact." *Parks and Recreation*, 9, 5 (May 1974), pp. 24-26, 62-63.

"Today's Playground: Designed for Chimp or Child? Q. and A. with M. J. Ellis." *American School and University*, 43, 12 (August 1971), pp. 21-23, 40. EJ 042 398.

Utzinger, Robert C. *Some European Nursery Schools and Playgrounds*. Ann Arbor: Architectural Research Laboratory, University of Michigan, 1970. 79 pages. ED 048 928 Document not available from EDRS. (Available from Publications Distribution Services, University of Michigan, Ann Arbor, Michigan 48106. $3.50. Monograph ECF/2.)

Walston, Herman Ervin. "Materials, Equipment, and Primary Learning Factors Which Can Be Utilized by Early Childhood Education Planners in Devising Creative Playgrounds for Young Children." 1974. 37 pages. ED 097 122 MF $0.83 HC $2.06.